

5

CLAIMS

What is claimed is:

- 10 1. A method for communicating between computer bus modules comprising the steps of:
- converting native bus signals from a first computer module to a first point-to-point interface;
- conveying the bus signals using the first point-to-point interface to a bus emulator;
- 15 conveying the bus signals from the bus emulator using a second point-to-point interface to a second computer module; and
- converting the bus signals received at the second computer to a native form.
- 20 2. The method of Claim 1 wherein the step of converting native bus signals from a first computer module to a first point-to-point interface comprises the steps of:
- monitoring the native bus signals in order to identify the beginning of a data transfer cycle; and
- 25 accepting data and address signals from the native bus and serializing these together with an indication of the type of transfer identified.
3. The method of Claim 1 wherein the step of conveying bus signals from the bus emulator to a second computer module comprises the steps of:
- 30 receiving the bus signals from the first point-to-point interface in the bus emulator;
- translating the first point-to-point interface received in the bus emulator to a bus structure internal to the bus emulator;

5 conveying the bus signals received in the bus emulator by way of the first
point-to-point interface onto said bus structure; and
translating the bus signals carried on said bus structure to a second point-
to-point interface.

10 4. The method of Claim 3 wherein the step of conveying the bus signals
received in the bus emulator by way of the first point-to-point interface onto
said bus structure comprises the steps of:
granting said bus structure to the first point-to-point interface if said bus
structure is available; and
15 propagating the bus signals translated from the first point-to-point interface
onto the bus structure if the bus structure is granted to said first point-to-
point interface.

20 5. A computer system comprising:
plurality of point-to-point interface units comprising a computer module
interface and a point-to-point interface;
plurality of computer modules connected to the computer module interface
of the plurality of point-to-point interface units; and
bus emulator connected to the point-to-point interface of the plurality of
25 point-to-point interface units.

30 6. The computer system of Claim 5 wherein the plurality of point-to-point
interface units comprise parallel-to-serial conversion units that operate upon
detecting the beginning of a data transfer cycle presented to the computer
module interface and wherein the parallel-to-serial conversion units accept a
data field and an address field and a cycle-type indicator from the computer
module interface.

- 5 7. The computer system of Claim 5 wherein the plurality of point-to-point interface units comprise high-current parallel drivers capable of propagating data, address and data transfer cycle requests.
- 10 8. The computer system of Claim 5 wherein the bus emulator comprises:
plurality of point-to-point interfaces interconnected by an internal bus.
9. The computer system of Claim 8 further comprising an arbiter for granting access to the internal bus to one of the plurality of point-to-point interfaces.
- 15 10. The computer system of Claim 8 further comprising a cascade port that connects to the internal bus and can be used to extend the length of the internal bus.
11. A computer module comprising a point-to-point interface.
- 20 12. The computer module of Claim 11 wherein the point-to-point interface comprises:
parallel-to-serial conversion unit that operate upon detecting the beginning of a data transfer cycle presented to the computer module interface and wherein the parallel-to-serial conversion units accept a data field and an address field and a cycle-type indicator from the computer module interface and delivers a serial output comprising a data transfer cycle to the point-to-point interface.
- 25 13. The computer module of Claim 11 wherein the point-to-point interface comprises high-current parallel drivers capable of propagating data, address and data transfer cycle requests.
- 30

- 5 14. A point-to-point interface unit comprising a computer module interface and a point-to-point interface.
15. The point-to-point interface unit of Claim 14 further comprising parallel-to-serial conversion unit that operate upon detecting the beginning of a data
10 transfer cycle presented to the computer module interface and wherein the parallel-to-serial conversion units accept a data field and an address field and a cycle-type indicator from the computer module interface and delivers a serial output comprising a data transfer cycle to the point-to-point interface.
- 15 16. The computer system of Claim 14 wherein the plurality of point-to-point interface units comprise high-current parallel drivers capable of propagating data, address and data transfer cycle requests.
- 20 17. A bus emulator comprising:
internal bus; and
plurality of point-to-point interfaces interconnected by the internal bus.
18. The bus emulator of Claim 17 an arbiter for granting access to the internal
25 bus to one of the plurality of point-to-point interfaces.
19. The bus emulator of Claim 17 further comprising a cascade port connected to the internal bus and can be used to extend the length of the internal bus.